



Office of Environment, Safety and Health

LLNL and WIPP Enforcement Actions

Ralph Kopenhaver -LSO

Richard Farrell – CBFO

Pete Rodrik – OE

Office of Price-Anderson Enforcement

Helping the field succeed with safe and reliable operations.





Introduction

- ✓ LLNL Site-Wide Investigation
- ✓ LNL MOVER Investigation
- ✓ WIPP MOVER Investigation

Helping the field succeed with safe and reliable operations.



LLNL Site-Wide Investigation Background

- ✓ **LLNL Program Review 2004**
 - Significant weaknesses observed

- ✓ **LLNL Follow-up Program Review 2005**
 - No improvements observed

- ✓ **Multiple DOE/NNSA Reviews 2004/2005**
 - Many longstanding nuclear safety issues

Helping the field succeed with safe and reliable operations.



LLNL Site-Wide Investigation Background (*cont'd*)

- ✓ **Super Block Stand-down January 2005**
- ✓ **NNSA HQ, LSO, and OE expand scope of ongoing MOVER investigation**
- ✓ **Phosphorous-32 Spill Event April 2005**

Helping the field succeed with safe and reliable operations.



LLNL Site-Wide Investigation

✓ **Focused on Problems in the Following Areas:**

- Phosphorous-32 Spill Event
- Radiation Protection Program
- Configuration Management Program
(Safety Basis and Design Control)
- USQ Program Implementation
- Quality Improvement Processes

Helping the field succeed with safe and reliable operations.



LLNL Site-Wide Investigation

Phosphorous-32 Spill Event

- ✓ **Key Factors Considered:**
 - Inadequate spill response
 - Unauthorized/uncontrolled removal of radioactive material from site
 - Technical Expert/supervisor involvement

Helping the field succeed with safe and reliable operations.



LLNL Site-Wide Investigation Radiation Protection Program

✓ **Key Factors Considered**

- No formal process to capture work place radiological deficiencies
- Lack of required ALARA reviews
- Failures to track and correct 835 audit findings
- Some of the above deficiencies considered event precursors

Helping the field succeed with safe and reliable operations.



LLNL Site-Wide Investigation Configuration Management Program

✓ **Key Factors Considered**

- Multiple TSR Violations – Specific system and program issues
- Design Control and Documentation Issues – Recent facility modification deficiencies
- Failure to complete baseline vital system walk downs and assessments

Helping the field succeed with safe and reliable operations.



LLNL Site-Wide Investigation

USQ Program Implementation

✓ **Key Factors Considered**

- Failures to address Discrepant-as-Found Conditions (DAFC via USQ PISA process)
- Multiple longstanding documentation issues
- Failure to adequately screen per procedures
- Multiple NTS Reports

Helping the field succeed with safe and reliable operations.



LLNL Site-Wide Investigation Quality Improvement Process

✓ **Key Factors Considered**

- Longstanding and recurring nature of many noncompliances
- Causal analysis process limited to very high level events and a lack of a defined process
- No integrated approach to corrective action management

Helping the field succeed with safe and reliable operations.



MOVER Overview

- ✓ Involved chronic radiological uptakes during TRU Waste glovebox operations
- ✓ Occurred at LLNL but in a WIPP controlled and operated mobile facility
- ✓ Project started with surplus equipment from LANL, transferred to WIPP, with unresolved quality problems

Helping the field succeed with safe and reliable operations.



MOVER



Helping the field succeed with safe and reliable operations.



MOVER



Helping the field succeed with safe and reliable operations.



MOVER



Helping the field succeed with safe and reliable operations.



LLNL MOVER Investigation

Focused On:

- ✓ Facility Readiness Activities
- ✓ LLNL Radiation Protection Services
- ✓ Safety Basis Implementation
- ✓ DOE perceived weaknesses in LLNL event investigation and recommended actions

Helping the field succeed with safe and reliable operations.



LLNL MOVER Investigation (*cont'd*)

- ✓ **Key OE Investigation Results**
 - Inadequate system testing and lack of limits on equipment operability
 - Mismatch of radiological controls with facility conditions
 - Ineffective LLNL response to the changing radiological conditions

Helping the field succeed with safe and reliable operations.



LLNL MOVER Enforcement Action

✓ **Key Factors Considered**

- Multiple breakdowns in the development of radiological controls
- Several missed opportunities by technical experts and supervision to identify and control the hazards
- Potential consequences could have been greater

Helping the field succeed with safe and reliable operations.



LLNL Site-Wide Enforcement Action (*cont'd*)

- ✓ One SL III, Three SL II, and Two SL I
- ✓ Only Limited Mitigation for the SL II's
 - 25% for corrective action
 - None for reporting
- ✓ Two Quality Improvement Violations Escalated

Helping the field succeed with safe and reliable operations.



LLNL MOVER Enforcement Action (*cont'd*)

- ✓ **Three Severity Level II Violations**
- ✓ **Only Limited Mitigation**
 - Weaknesses in initial causal analysis and corrective action plans
 - Deficiencies were disclosed by the event

Helping the field succeed with safe and reliable operations.



WTS MOVER Investigation

Focused On:

- ✓ Safety Basis Development Issue
- ✓ Control of Design and Operational Interfaces
- ✓ WTS Response to Abnormal Conditions
- ✓ WTS's limited response to the event

Helping the field succeed with safe and reliable operations.



WTS MOVER Investigation (*cont'd*)

✓ **OE Key Investigation Results**

- Safety Basis development inappropriately passed to host sites
- Design related quality issues not adequately resolved
- Inadequate abnormal condition response (ventilation alarms, high surface contamination, chronic airborne levels)



WTS MOVER Enforcement Action

✓ **Key Factors Considered**

- WTS initial investigation inadequate
- Safety Basis and design issues resulted in a limited understanding of system performance prior to use
- Operational experience at ANL-E not carried forward to LLNL

Helping the field succeed with safe and reliable operations.



WTS MOVER Enforcement Action (*cont'd*)

- ✓ **Four Severity Level II Violations**
- ✓ **Only Limited Mitigation**
 - Weaknesses in initial causal analysis and corrective action plans
 - Deficiencies were disclosed by the event

Helping the field succeed with safe and reliable operations.